

# subalpine fir mortality

## Region 4

### Host(s):

**Survey Date:** 09/18/2007

**Survey Method:** GIS Data to FHTET (Insect & Disease Survey, etc.)

**Damage Type(s):** No Data

**Setting(s):** Not Applicable

**Origin:** Not Applicable

**Acres Affected:** 0

### Affected Area:

### Narrative:

Decline and die-off of subalpine fir started in the late 1980's in the Intermountain Region with the peak mortality period occurring in the mid-1990's when over a million trees were affected by this complex. Although there are a number of pathogens involved in this complex, the primary insect causing subalpine fir mortality is the western balsam bark beetle; *Dryocoetes confusus*. It is thought that drought, compounded by overstocked and overmature stand conditions, are the main contributing factors to subalpine fir decline.

In 2007, approximately 673,100 subalpine fir trees died over 262,900 acres. This is a substantial increase over 2006's reported 125,300 subalpine fir trees killed over 61,700 acres. Southern Idaho experienced the most subalpine fir mortality (340,600 trees across 49,900 acres) with trees killed across all ownerships. In southern Idaho, the Salmon-Challis National Forest had the highest amount of mortality in the Region with 316,800 trees killed across 39,900 acres. Wyoming accounted for the largest amount of acreage affected by the subalpine fir mortality complex with 141,900 acres and 205,200 trees killed. This is the fourth consecutive year that the Bridger-Teton National Forest in Wyoming had very high amounts of mortality with 196,300 trees killed across 137,100 acres. An additional 4,000 trees were killed across 1,700 acres of Bureau of Land Management and 4,100 trees across 2,600 acres of private lands in Wyoming. In Utah, subalpine fir mortality was scattered across most ownerships (126,100 trees killed across 68,450 acres) with most mortality occurring on the national forests (102,200 trees across 54,600 acres). Private lands in Utah also experienced high amounts of subalpine fir mortality with 21,400 trees killed across 12,100 acres.

# annosus root disease

## ***Heterobasidion annosum***

**Region 4** California (Alpine County, El Dorado County, Mono County, Nevada County, Placer County, Sierra County, Tuolumne County)  
Colorado (Mesa County, Montrose County)  
Idaho (Adams County, Bannock County, Bear Lake County, Bingham County, Blaine County, Boise County, Bonneville County, Butte County, Camas County, Caribou County, Cassia County, Clark County, Custer County, Elmore County, Franklin County, Fremont County, Gem County, Idaho County, Lemhi County, Madison County, Oneida County, Owyhee County, Payette County, Power County, Teton County, Twin Falls County, Valley County, Washington County)  
Nevada (Carson City, Clark County, Douglas County, Elko County, Eureka County, Lincoln County, Lyon County, Mineral County, Nye County, Storey County, Washoe County, White Pine County)  
Utah (Beaver County, Box Elder County, Cache County, Carbon County, Daggett County, Davis County, Duchesne County, Emery County, Garfield County, Grand County, Iron County, Juab County, Kane County, Millard County, Morgan County, Piute County, Rich County, Salt Lake County, San Juan County, Sanpete County, Sevier County, Summit County, Tooele County, Uintah County, Utah County, Wasatch County, Washington County, Wayne County, Weber County)  
Wyoming (Fremont County, Lincoln County, Park County, Sublette County, Teton County, Uinta County)

**Host(s):** California red fir, Douglas-fir, Engelmann spruce, fir, grand fir, Jeffrey pine, lodgepole pine, ponderosa pine, subalpine fir, white fir

**Survey Date:** 01/28/2008

**Survey Method:** General Observation

**Damage Type(s):** Mortality, Other damage

**Setting(s):** Rural Forest

**Origin:** Native

**Acres Affected:** 0

**Affected Area:**

### **Narrative:**

This disease can be found throughout the Region. The full ecological effects of this fungal organism have never been truly evaluated over a long period of time. As a saprophyte, *H. annosum* is beneficial to the recycling of dead trees, stumps, and roots. However, the fungus also functions as a plant disease pathogen, causing an economic loss by killing young seedlings and saplings, especially ponderosa pines in reforested areas on droughty soils.

# Armillaria root disease

## *Armillaria spp.*

**Region 4** California (Alpine County, El Dorado County, Mono County, Nevada County, Placer County, Sierra County, Tuolumne County)  
Colorado (Mesa County, Montrose County)  
Idaho (Adams County, Bannock County, Bear Lake County, Bingham County, Blaine County, Boise County, Bonneville County, Butte County, Camas County, Caribou County, Cassia County, Clark County, Custer County, Elmore County, Franklin County, Fremont County, Gem County, Idaho County, Lemhi County, Madison County, Oneida County, Owyhee County, Payette County, Power County, Teton County, Twin Falls County, Valley County, Washington County)  
Nevada (Carson City, Clark County, Douglas County, Elko County, Esmeralda County, Eureka County, Humboldt County, Lincoln County, Lyon County, Mineral County, Nye County, Storey County, Washoe County, White Pine County)  
Utah (Beaver County, Box Elder County, Cache County, Carbon County, Daggett County, Davis County, Duchesne County, Emery County, Garfield County, Grand County, Iron County, Juab County, Kane County, Millard County, Morgan County, Piute County, Rich County, Salt Lake County, San Juan County, Sanpete County, Sevier County, Summit County, Tooele County, Uintah County, Utah County, Wasatch County, Washington County, Wayne County, Weber County)  
Wyoming (Fremont County, Lincoln County, Park County, Sublette County, Teton County, Uinta County)

**Host(s):** bristlecone pine, Douglas-fir, grand fir, Jeffrey pine, limber pine, lodgepole pine, ponderosa pine, subalpine fir, sugar pine, western white pine, whitebark pine

**Survey Date:** 01/28/2008

**Survey Method:** General Observation

**Damage Type(s):** Mortality, Other damage

**Setting(s):** Rural Forest, Urban

**Origin:** Native

**Acres Affected:** 0

**Affected Area:**

### Narrative:

Evidence of Armillaria root disease can be found throughout Region 4; however, the fungus functions primarily as a weak pathogen or saprophyte in most locations, causing little direct mortality. In southern Utah, it may act as a primary pathogen, killing mature and immature lodgepole pine and mature fir and spruce on cool sites at high elevation.

# balsam woolly adelgid

## *Adelges piceae*

**Region 4** Idaho (Adams County, Boise County, Custer County, Elmore County, Gem County, Idaho County, Lemhi County, Valley County, Washington County)

**Host(s):** grand fir, subalpine fir

**Survey Date:** 10/29/2007

**Survey Method:** Ground Survey

**Damage Type(s):** Branch flagging, Dieback, Discoloration, Mortality

**Setting(s):** Rural Forest, Urban

**Origin:** Exotic

**Acres Affected:** 3,840,000

### Affected Area:

### Narrative:

While this introduced forest insect has been present in northern Idaho (Region 1) since 1983, its presence in southern Idaho (Region 4) was not verified until 2001, when it was found killing subalpine fir trees in residential areas of Cascade and McCall. In 2006 and 2007, delimitation surveys were conducted by personnel from Idaho Department of Lands and Intermountain Region Forest Health Protection to determine the distribution of balsam woolly adelgid (BWA) south of the Salmon River. From these surveys, we have identified the presence of BWA on state, private and Forest Service lands as far west as Sturgill Peak on the Payette National Forest, as far south as the Trinity Mountains near Featherville on the Boise NF, and as far east as the town of Atlanta and Fir Creek Campground near Bear Valley, also on the Boise National Forest. We plan to establish long-term evaluation plots in 2008.

## black stain root disease

### *Ophiostoma wageneri*

**Region 4** California (Alpine County, Mono County, Sierra County)  
Colorado (Mesa County, Montrose County)  
Idaho (Cassia County, Franklin County)  
Nevada (Carson City, Churchill County, Clark County, Douglas County, Elko County, Esmeralda County, Eureka County, Humboldt County, Lander County, Lincoln County, Lyon County, Mineral County, Nye County, Pershing County, Storey County, Washoe County, White Pine County)  
Utah (Beaver County, Box Elder County, Cache County, Carbon County, Daggett County, Duchesne County, Emery County, Garfield County, Grand County, Iron County, Juab County, Kane County, Millard County, Piute County, San Juan County, Sanpete County, Sevier County, Tooele County, Uintah County, Utah County, Wasatch County, Washington County, Wayne County)  
Wyoming (Sweetwater County)

**Host(s):** common pinyon, singleleaf pinyon

**Survey Date:** 01/29/2008

**Survey Method:** Ground Survey

**Damage Type(s):** Mortality

**Setting(s):** Rural Forest, Urban

**Origin:** Native

**Acres Affected:** 3,050

**Affected Area:**

**Narrative:**

Aerial detection and follow-up ground surveys have discovered about two-dozen root disease centers in pinyon pine stands in the Intermountain Region. In Utah and Nevada, the host is more prevalent and so is the occurrence of black stain root disease. Nevertheless, fewer than 1,500 acres of pinyon pine in each state have been found infected with the root disease. In southern Idaho, the northern range of pinyon pine terminates on the Bureau of Land Management, Burley District with the infected area encompassing about 50 acres.

## Douglas-fir beetle

### ***Dendroctonus pseudotsugae***

#### **Region 4**

##### **Host(s):**

**Survey Date:** 09/18/2007

**Survey Method:** GIS Data to FHTET (Insect & Disease Survey, etc.)

**Damage Type(s):** No Data

**Setting(s):** Not Applicable

**Origin:** Not Applicable

**Acres Affected:** 0

**Affected Area:** All ownerships in Idaho, Utah, and Wyoming.

##### **Narrative:**

Douglas-fir beetle-caused tree mortality increased across Region 4, with all ownerships affected. In 2007, nearly 48,500 acres were affected compared to 19,100 acres in 2006. The majority of the Douglas-fir mortality for 2007 was located in Utah (33,300 acres), primarily on the Ashley and Dixie National Forests, 11,100 and 7,000 acres, respectively. There was a slight increase in mortality across southern Idaho, 14,400 in 2007 versus 11,500 in 2006. However, the 2007 totals for southern Idaho may be low because heavy smoke from western wildfires precluded complete survey coverage. In southern Idaho, the Salmon-Challis National Forest accounted for half the reported mortality with 6,800 acres in 2007 compared to 6,200 acres in 2006. Douglas-fir mortality on the Bridger-Teton National Forest in Wyoming decreased from 1,300 acres in 2006 to 600 acres in 2007. The continuation of extended multi-year drought across much of the west has likely contributed to the increased mortality reported in 2007.

## Douglas-fir tussock moth

### *Orgyia pseudotsugata*

#### Region 4

##### Host(s):

**Survey Date:** 09/18/2007

**Survey Method:** GIS Data to FHTET (Insect & Disease Survey, etc.)

**Damage Type(s):** No Data

**Setting(s):** Not Applicable

**Origin:** Not Applicable

**Acres Affected:** 0

##### Affected Area:

##### Narrative:

Defoliation of Douglas- and subalpine fir attributed to Douglas-fir tussock moth (DFTM) increased in 2007. Approximately 3,000 acres of defoliation were reported in 2007 on the Jarbridge and Mountain City Ranger Districts of the Humboldt-Toiyabe National Forest in northeast Nevada. In southern Idaho, DFTM populations collapsed and all defoliated sites reported in 2006 (2,700 acres) were virtually clear with less than 100 total acres of defoliation reported in 2007 on state, private, and Bureau of Land Management lands. The DFTM population collapse is primarily due to larval mortality from parasitic wasps. DFTM was not reported in Utah in 2007.

fir engraver

***Scolytus ventralis***

**Region 4**

**Host(s):**

**Survey Date:** 09/18/2007

**Survey Method:** GIS Data to FHTET (Insect & Disease Survey, etc.)

**Damage Type(s):** No Data

**Setting(s):** Not Applicable

**Origin:** Not Applicable

**Acres Affected:** 0

**Affected Area:**

**Narrative:**

In 2007, fir engraver beetle-caused tree mortality decreased for the third consecutive year. Aerial surveyors recorded nearly 14,900 acres of fir mortality in 2007, compared to 21,000 acres reported in 2006. Most of the mortality was scattered across the national forests in Utah (8,000 acres). The Dixie and the Fishlake National Forests had the highest occurrence in 2007 with 3,200 and 2,900 acres, respectively. On the Humboldt-Toiyabe National Forest in Nevada, fir mortality decreased from 16,000 acres in 2006 to approximately 2,800 acres in 2007. Most of this mortality occurred on the Ely Ranger District. Fir mortality decreased on the Great Basin National Park in Nevada from 2,200 acres in 2006 to 550 acres in 2007.

forest tent caterpillar

*Malacosoma disstria*

**Region 4**

**Host(s):**

**Survey Date:** 09/18/2007

**Survey Method:** GIS Data to FHTET (Insect & Disease Survey, etc.)

**Damage Type(s):** No Data

**Setting(s):** Not Applicable

**Origin:** Not Applicable

**Acres Affected:** 0

**Affected Area:**

**Narrative:**

In 2007, 62 acres of aspen defoliation by forest tent caterpillar was reported on private and Bureau of Land Management lands in Utah during aerial surveys. In 2006, isolated pockets of forest tent caterpillar and fall webworm defoliation were noted throughout the region based on ground observations.

# gypsy moth

## *Lymantria dispar*

**Region 4**      Idaho (Elmore County, Jefferson County)  
                        Utah (Salt Lake County)

**Host(s):**      No data

**Survey Date:**    09/28/2007

**Survey Method:**   Ground Survey

**Damage Type(s):**   No damage

**Setting(s):**      Rural Forest, Urban

**Origin:**      Exotic

**Acres Affected:**   0

**Affected Area:**

### **Narrative:**

The first gypsy moth detected in Region 4 was in Utah in 1988. Since then, male moths have been captured in various locations throughout the region nearly every year. In 2007, four male moths were captured in detection-trapping grids, two in Utah and two in Idaho. Both of the Utah gypsy moths were captured in Salt Lake County: one in Sandy and one in West Valley City, which are suburbs of Salt Lake City. In Idaho, one moth was captured in Heise (Jefferson County) and the other was captured in Mountain Home (Elmore County). In 2008, delimitation-trapping grids will be installed in the vicinity of these moth captures.

## Jeffery pine beetle

### *Dendroctonus jeffreyi*

#### Region 4

##### Host(s):

**Survey Date:** 09/18/2007

**Survey Method:** GIS Data to FHTET (Insect & Disease Survey, etc.)

**Damage Type(s):** No Data

**Setting(s):** Not Applicable

**Origin:** Not Applicable

**Acres Affected:** 0

##### Affected Area:

##### Narrative:

In 2007, Jeffrey pine beetle-caused mortality decreased by half. In 2006, approximately 900 trees were killed over 450 acres. In 2007, over 450 trees were killed across 225 acres. Most of the mortality occurred on the Carson Ranger District of the Humboldt-Toiyabe National Forest affecting over 375 trees across 175 acres.

# mistletoe

**Region 4** California (Alpine County, El Dorado County, Mono County, Nevada County, Placer County, Sierra County, Tuolumne County)  
Colorado (Mesa County, Montrose County)  
Idaho (Adams County, Bannock County, Bear Lake County, Bingham County, Blaine County, Boise County, Bonneville County, Butte County, Camas County, Caribou County, Cassia County, Clark County, Custer County, Elmore County, Franklin County, Fremont County, Gem County, Idaho County, Lemhi County, Madison County, Oneida County, Owyhee County, Payette County, Power County, Teton County, Twin Falls County, Valley County, Washington County)  
Nevada (Carson City, Clark County, Douglas County, Elko County, Esmeralda County, Eureka County, Humboldt County, Lincoln County, Lyon County, Mineral County, Nye County, Storey County, Washoe County, White Pine County)  
Utah (Beaver County, Box Elder County, Cache County, Carbon County, Daggett County, Davis County, Duchesne County, Emery County, Garfield County, Grand County, Iron County, Juab County, Kane County, Millard County, Morgan County, Piute County, Rich County, Salt Lake County, San Juan County, Sanpete County, Sevier County, Summit County, Tooele County, Uintah County, Utah County, Wasatch County, Washington County, Wayne County, Weber County)  
Wyoming (Fremont County, Lincoln County, Park County, Sublette County, Teton County, Uinta County)

**Host(s):** bristlecone pine, California red fir, Douglas-fir, grand fir, Jeffrey pine, limber pine, lodgepole pine, ponderosa pine, subalpine fir, sugar pine, western larch, western white pine, white fir, whitebark pine

**Survey Date:** 01/29/2008

**Survey Method:** General Observation

**Damage Type(s):** Dieback, Mortality

**Setting(s):** Rural Forest, Urban

**Origin:** Native

**Acres Affected:** 0

**Affected Area:**

**Narrative:**

These plant parasites remain the most widespread and frequently observed disease within the Intermountain Region. Regional incidence by major host species is declining due to landscape level wildfires. It has been almost 30 years since the last dwarf mistletoe survey and assessment. However, Forest Health Specialists estimate incidence of these perennial tree pathogens as follows: lodgepole pine 40%, ponderosa pine 15%, and Douglas-fir 15%. These percentages by host type represent stands having some level of infection.

# mountain pine beetle

## ***Dendroctonus ponderosae***

### **Region 4**

#### **Host(s):**

**Survey Date:** 09/18/2007

**Survey Method:** GIS Data to FHTET (Insect & Disease Survey, etc.)

**Damage Type(s):** No Data

**Setting(s):** Not Applicable

**Origin:** Not Applicable

**Acres Affected:** 0

#### **Affected Area:**

#### **Narrative:**

Mountain pine beetle- (MPB) caused tree mortality increased from 1.7 million trees killed over 510,500 acres in 2006 to over 4.6 million trees killed across 1.1 million acres in 2007. Most of the mortality occurred in three distinct areas. In central Idaho, mortality on the Salmon-Challis National Forest and the Sawtooth National Recreation Area increased to 1.7 million lodgepole and whitebark pine trees killed over 272,800 acres in 2007 from 827,200 lodgepole, limber and whitebark pine trees killed over 205,500 acres in 2006. Bark beetle caused tree mortality began in this area in 1998. This MPB outbreak is currently the largest recorded in the Region. The second outbreak area is located in western Wyoming on the Bridger-Teton National Forest and private land. Tree mortality increased from approximately 489,400 lodgepole and whitebark pine trees killed over 171,300 acres in 2006 to over 1.3 million trees killed across 413,100 acres in 2007. The third outbreak area is located in northern Utah on the Wasatch-Cache and Ashley National Forests. This outbreak, which began in 2003, increased from 169,700 lodgepole and ponderosa pine trees killed over 74,200 acres in 2006 to 981,900 lodgepole and ponderosa pine trees killed over 258,450 acres in 2007.

# pine engraver

## *Ips pini*

### Region 4

#### Host(s):

**Survey Date:** 09/18/2007

**Survey Method:** GIS Data to FHTET (Insect & Disease Survey, etc.)

**Damage Type(s):** No Data

**Setting(s):** Not Applicable

**Origin:** Not Applicable

**Acres Affected:** 0

#### Affected Area:

#### Narrative:

Tree mortality caused by pine engraver beetle remained at endemic levels throughout the Region with only 60 trees reported killed in 2007, a decrease from 150 trees killed in 2006. In 2007, half of the trees killed were reported on the Humboldt-Toiyabe National Forest in Nevada, the other half on the Boise and Payette National Forests in Idaho.

pinon ips

*Ips confusus*

**Region 4**

**Host(s):**

**Survey Date:** 09/18/2007

**Survey Method:** GIS Data to FHTET (Insect & Disease Survey, etc.)

**Damage Type(s):** No Data

**Setting(s):** Not Applicable

**Origin:** Not Applicable

**Acres Affected:** 0

**Affected Area:**

**Narrative:**

Historically, pinyon-juniper forests have not been aerially surveyed in the Intermountain Region. However, the dramatic increase in pinyon mortality during 2001 and 2002, which resulted from an extended drought and increased pinyon ips populations, necessitated documenting this widespread mortality. By 2005, the pinyon ips outbreak had returned to endemic levels. Therefore, much of the pinyon/juniper forest type has not been surveyed since 2004. Of the pinyon forest type surveyed in 2007, nearly 24,400 pinyon pine trees were killed across 14,500 acres, an increase from 2006's approximately 12,800 pinyon pines trees mapped across 9,200 acres. Most of the tree mortality was reported in Utah (23,600 trees across 14,000 acres), primarily on Bureau of Land Management lands and on the Dixie National Forest. The remainder of the mortality (800 trees on 500 acres) occurred in Nevada on the Humboldt-Toiyabe National Forest, Bureau of Land Management and private lands.

spruce beetle

***Dendroctonus rufipennis***

**Region 4**

**Host(s):**

**Survey Date:** 09/18/2007

**Survey Method:** GIS Data to FHTET (Insect & Disease Survey, etc.)

**Damage Type(s):** No Data

**Setting(s):** Not Applicable

**Origin:** Not Applicable

**Acres Affected:** 0

**Affected Area:**

**Narrative:**

In 2007, Engelmann spruce beetle caused mortality increased to 114,800 trees killed over 37,700 acres compared to 20,700 trees killed over 12,800 acres in 2006. Nearly all of the mortality occurred in Utah, where each national forest experienced some level of spruce mortality. National forests where heavier mortality was mapped included the Fishlake (44,300 trees over 10,200 acres), Dixie (11,100 trees over 9,700 acres), and Manti-LaSal (32,400 trees over 6,600 acres). Spruce mortality was also mapped on private lands in Utah affecting 12,500 trees across 2,800 acres.

## Stem Rusts

**Region 4** California (Alpine County, El Dorado County, Mono County, Nevada County, Placer County, Sierra County, Tuolumne County)  
Idaho (Adams County, Bannock County, Bear Lake County, Blaine County, Bonneville County, Butte County, Caribou County, Cassia County, Clark County, Custer County, Franklin County, Fremont County, Idaho County, Lemhi County, Owyhee County, Power County, Teton County)  
Nevada (Carson City, Clark County, Douglas County, Elko County, Esmeralda County, Eureka County, Humboldt County, Lincoln County, Mineral County, Nye County, Storey County, Washoe County, White Pine County)  
Wyoming (Fremont County, Lincoln County, Park County, Sublette County, Teton County, Uinta County)

**Host(s):** bristlecone pine, limber pine, sugar pine, western white pine, whitebark pine

**Survey Date:** 01/29/2008

**Survey Method:** General Observation

**Damage Type(s):** Dieback, Mortality

**Setting(s):** Rural Forest

**Origin:** Native

**Acres Affected:** 0

**Affected Area:**

### Narrative:

This introduced disease is common throughout its hosts range in southern Idaho and western Wyoming. It is present in the western portion of the Intermountain Region in California and Nevada near the Lake Tahoe area. No infections on pine hosts have been found or reported in Utah; however, the fungus was recently confirmed on *Ribes inerme* leaves in Utah. Recent observations of white pine blister rust in eastern Nevada are cause for concern because they are close to highly valued bristlecone pine populations in Great Basin National Park and elsewhere. Overall, five-needled pine trees are of low occurrence and frequency in the Intermountain Region. Often relegated to high alpine areas, these pines grow slowly but provide important ecosystem functions such as shade and stabilization of snow retention for watershed integrity, recreation, aesthetics, and wildlife habitat and usage.

## **western pine beetle**

### ***Dendroctonus brevicomis***

#### **Region 4**

##### **Host(s):**

**Survey Date:** 09/18/2007

**Survey Method:** GIS Data to FHTET (Insect & Disease Survey, etc.)

**Damage Type(s):** No Data

**Setting(s):** Not Applicable

**Origin:** Not Applicable

**Acres Affected:** 0

##### **Affected Area:**

##### **Narrative:**

In 2007, the number of ponderosa pine trees killed by western pine beetle attacks increased slightly. Approximately 1,800 trees were killed affecting 900 acres in 2007, compared to 1,000 trees killed over 500 acres in 2006. This mortality was scattered across national forest, state and private lands in southwestern Idaho.

## **western spruce budworm**

### ***Choristoneura occidentalis***

#### **Region 4**

##### **Host(s):**

**Survey Date:** 09/18/2007

**Survey Method:** GIS Data to FHTET (Insect & Disease Survey, etc.)

**Damage Type(s):** No Data

**Setting(s):** Not Applicable

**Origin:** Not Applicable

**Acres Affected:** 0

##### **Affected Area:**

##### **Narrative:**

Western spruce budworm-caused tree defoliation decreased significantly in 2007 affecting 101,600 acres compared to a high of 342,900 acres of defoliation in 2006. Defoliation was reported on most ownership's in south-central Idaho and Utah. In Idaho, for the third consecutive year, defoliation occurred on the Boise National Forest (12,900 acres). Defoliation was also reported on the Salmon-Challis (19,500 acres) National Forest, Bureau of Land Management lands (7,300 acres) and to a lesser extent on State of Idaho lands (nearly 1,500 acres) and private lands (1,000 acres). In Utah, the Dixie National Forest reported the highest acreage affected by budworm defoliation at 43,600 acres. Private land in Utah had 3,000 acres of defoliation.